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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,591	01/26/2004	Christopher Mark Palazzini	67,097-037/EH-10890	1721

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EXAMINER	
AFZALI, SARANG	

ART UNIT	PAPER NUMBER
3726	

DATE MAILED: 08/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/765,591	PALAZZINI ET AL.	
	Examiner	Art Unit	
	Sarang Afzali	3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 15-17* is/are rejected.

7)☒ Claim(s) *12-14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2172004, 12192005, 162006
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-11 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiggs et al. (US 5,269,058) in view of Butter (US 3,678,802).

As applied to claims 1-2, and 15-17, Wiggs et al. teach a method for forming a hollow metallic blade comprising steps of:

machining a plurality of continuous cavities (46, 47, Figs. 4-5) on a first substrate (12, Figs. 4-5) to define a plurality of ribs (48, Figs. 4-5) adjacent the cavities, and abutting the plurality of ribs on the first substrate with a second substrate (14, Fig. 5) to form a hollow blade of an airfoil shape.

Wiggs et al. teach the invention cited with the exception of exclusively teaching a machining step, which includes the step of simultaneously machining a floor and opposite interior wall surfaces of the cavities using a 3-axis machining operation.

However, Butter teaches a method of cutting individual cooling channels in a tubular wall section (body 1, Fig. 4) using a 3-axis machining operation, wherein a cutting device (13 with tool W, Fig. 6) is simultaneously machining a floor and opposite interior wall surfaces of the cavities at position (b, Fig. 4) between the converging and

diverging sections (1c and 1b, Fig. 4) in order to provide the smallest channel width (x, Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time of invention to have employed the teachings of Butter in the processing steps of Wiggs et al., wherein a single tool pass would simultaneously machine a floor and opposite interior wall surfaces of the cavities, to provide a minimum number of tool passes in machining and forming the desired cavities resulting in an easy and economical forming of the cavities (col. 1, lines 65-66).

Note that Butter teaches that the width tool (W) must be equal to or smaller than the smallest channel width (x, col. 3, lines 53-54) therefore, when the width of tool (W) is equal to the channel width (x), it is inherent that at that step the tool is simultaneously machining the floor and opposite interior wall surfaces of the cavity.

Also, note that Wiggs et al. teach a method of making a hollow blade which explicitly teach the Applicant's claimed invention and therefore, no patentability weight is given to the limitation of "fan blade" claimed by the Applicant since it only recites intended use of the end product while the invention is about a method of making that product.

Furthermore, note that Butter teaches a 3-axis machining operation wherein the cutting device (13 with tool W, Fig. 6) is movably positionable relative to the body (1) for cutting the cooling channels (col. 4, lines 21-23).

As applied to claims 3-8, Wiggs et al. teach that the ribs (48, Fig. 5) formed are tapered and they transition into a compound radius in an adjacent one of the cavities

(Fig. 5); that the step of forming includes forming a plurality of ribs on the second substrate (14) and further step of abutting the ribs (48) on the first substrate (12) with the ribs (48) on the second substrate (14, Fig. 5); that the plurality of ribs (48) do not intersect one another and are each freestanding such that they are not intersected by any other ribs between opposite ends; and the plurality of the ribs (48) are parallel in a region adjacent a root edge.

As applied to claim 9, Wiggs et al. teach the invention cited with the exception of the number of machining passes. However, Butter teaches that the number of passes required for cutting operation depends on the width of the tool and the width of the channels which varies over the length of the workpiece (See Abstract).

It would have been obvious to one of ordinary skill in the art at the time of invention to have employed the teachings of Butter in the processing steps of Wiggs et al., by using an effective and suitable number (two) of machining passes in cutting the cavities, to provide an easy and economical means of machining cavities (col. 1, lines 65-66).

As applied to claims 10-11, Wiggs et al. teach that the cavities (46) extend continuously from one edge, the root edge (left hand edge, Fig. 3) of the substrate to another edge, the leading edge of the substrate (right edge, Fig. 3).

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. At least claims 1 and 15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of US Patent 7,070,391 in view of Butter (US 3,678,802).

As applied to claims 1 and 15, although the conflicting claims are not identical, they are not patentably distinct from each other because '391 Patent does not specifically disclose the machining step includes the step of simultaneously machining a floor and opposite interior wall surfaces of the cavities (claims 1 & 15) and the step of machining is a three-axis machining operation (claim 15). However, Butter teaches a method of cutting individual cooling channels in a tubular wall section (body 1, Fig. 4) using a 3-axis machining operation, wherein a cutting device (13 with tool W, Fig. 6) is simultaneously machining a floor and opposite interior wall surfaces of the cavities at position (b, Fig. 4) between the converging and diverging sections (1c and 1b, Fig. 4) in order to provide the smallest channel width (x, Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time of invention to have employed the teachings of Butter in the processing steps of '391 Patent, wherein a single tool pass would simultaneously machine a floor and opposite interior wall surfaces of the cavities, to provide a minimum number of tool passes in machining and forming the desired cavities resulting in an easy and economical forming of the cavities (col. 1, lines 65-66).

Note that Butter teaches that the width tool (W) must be equal to or smaller than the smallest channel width (x, col. 3, lines 53-54) therefore, when the width of tool (W) is equal to the channel width (x), it is inherent that at that step the tool is simultaneously machining the floor and opposite interior wall surfaces of the cavity.

Furthermore, note that Butter teaches a 3-axis machining operation wherein the cutting device (13 with tool W, Fig. 6) is movably positionable relative to the body (1) for cutting the cooling channels (col. 4, lines 21-23).

Allowable Subject Matter

5. Claims 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 12, the prior art fails to teach or fairly suggest the series of steps recited, particularly the step (a) further including the step of machining each

plurality of continuous cavities along a first path adjacent one of the plurality of ribs from a first end of the rib to a second end of the rib, then around the4 second end of the rib and along a second path adjacent the rib at least substantially to the first end of the rib and then followed by step (b) of abutting the plurality of the ribs on the first substrate with a second substrate to form a hollow fan blade.

Regarding claim 13, the prior art fails to teach or fairly suggest the series of steps recited, particularly the step (a) further including the step of machining a first continuous cavities along a first path adjacent a first rib of the plurality of ribs from a first end of the first rib to a second end of the first rib, then around the second end of the first rib and along a second path between the first rib and a second rib at least substantially to the first end of the first rib, then around a first end of the second rib and along a third path adjacent the second rib substantially to a second end of the second rib and then followed by step (b) of abutting the plurality of the ribs on the first substrate with a second substrate to form a hollow fan blade.

Regarding claim 14, the prior art fails to teach or fairly suggest the series of steps recited, particularly the step wherein at least a first subset of the plurality of continuous cavities form a single continuous serpentine path on either side of each of at least a first subset of the plurality of ribs.

7. Note that Frey (US 6,340,047) and Kercher (US 3,533,712) teach the steps of forming continuous cavities and a single continuous serpentine path, however, these cavities are not done in the first substrate followed by the step of abutting the plurality of ribs on the first substrate with a second substrate to form a hollow fan blade.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarang Afzali whose telephone number is 571-272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SA

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8/7/2006

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PRIMARY EXAMINER